



State of Utah

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Governor

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Lieutenant Governor

Department of
Environmental Quality

Amanda Smith
Executive Director

DIVISION OF AIR QUALITY
Bryce C. Bird
Director

DAQ-032-11

MEMORANDUM

TO: Air Quality Board

THROUGH: Bryce Bird, Executive Secretary

FROM: Joel Karmazyn, Environmental Scientist

DATE: June 7, 2011

SUBJECT: FINAL ADOPTION: R307-204. Emission Standards: Smoke Management.

The amendments to R307-204 were posted for public comment from May 1 to May 31, 2011.
No comments were received.

Staff Recommendation: DAQ staff recommends that the Board adopt the amendments to R307-204.

R307. Environmental Quality, Air Quality.

R307-204. Emission Standards: Smoke Management.

R307-204-1. Purpose and Goals.

(1) The purpose of R307-204 is to establish by rule procedures that mitigate the impact on public health and visibility of prescribed fire and wildland fire.

R307-204-2. Applicability.

(1) R307-204 applies to all persons using prescribed fire or wildland fire on land they own or manage.

(2) R307-204 does not apply to agricultural activities specified in 19-2-114 and to those regulated under R307-202, or to activities otherwise permitted under R307.

R307-204-3. Definitions.

The following additional definitions apply only to R307-204.

"Annual Emissions Goal" means the annual establishment of a planned quantitative value of emissions reductions from prescribed fire.

"Best Management Practices" means smoke management and dispersion techniques used during a prescribed fire or a wildland fire use event that affect the direction, duration, height or density of smoke.

"Burn Plan" means the plan ~~[required for each fire ignited by managers or allowed to burn]~~required for each fire application ignited by managers. It must be prepared by qualified personnel and approved by the appropriate agency administrator prior to implementation. Each plan follows specific agency direction and must include critical elements described in agency manuals.

"Burn Window" means the period of time during which the prescribed fire is scheduled for ignition.

"Emission Reduction Techniques (ERT)" mean techniques for controlling emissions from prescribed fires to minimize the amount of emission output per unit or acre burned.

"Federal Class I Area" means any Federal land that is federally classified or reclassified Class I.

"Fire Prescription" means the measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicates other required actions. Prescription criteria may include ~~[but are not limited to]~~safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

"Land Manager" means any federal, state, local or private entity that owns, administers, directs, oversees or controls the use of public or private land, including the application of fire to the land.

"Non-burning Alternatives to Fire" means non-burning techniques that are used to achieve a particular land management objective, including but not limited to reduction of fuel loading, manipulation of fuels, enhancement of wildlife habitat, and ecosystem restructuring. These alternatives are designed to replace the use of fire for at least the next five years.

1 "Particulate Matter" means the liquid or solid particles such
2 as dust, smoke, mist, or smog found in air emissions.

3 "Pile" means natural materials or debris resulting from some
4 type of fuels management practice that have been relocated either
5 by hand or machinery into a concentrated area.

6 "Pile Burn~~ing~~" means burning of individual piles.

7 "Prescribed Fire or Prescribed Burn" means any fire ignited
8 by management actions to meet specific objectives, such as
9 achieving resource benefits.

10 "Smoke Sensitive Receptors" means population centers such as
11 towns and villages, campgrounds and trails, hospitals, nursing
12 homes, schools, roads, airports, Class I areas, nonattainment and
13 maintenance areas, areas whose air quality monitoring data
14 indicate pollutant levels that are close to health standards, and
15 any other areas where smoke and air pollutants can adversely
16 affect public health, safety and welfare.

17 "Wildland" means an area in which development is essentially
18 non-existent, except for pipelines, power lines, roads, railroads,
19 or other transportation or conveyance facilities. Structures, if
20 any, are widely scattered.

21 "Wildland Fire" means any non-structure fire, other than
22 prescribed fire, that occurs in the wildland.

23 "Wildland Fire Use Event" means naturally ignited wildland
24 fire that is managed to accomplish specific pre-stated resource
25 management objectives in predefined geographic areas.

26 "Wildland Fire Implementation Plan (WFIP)" means the plan
27 required for each fire that is allowed to burn.

28 "~~W[ildland]-F[ire]-I[mplementation]-P[lan]~~ Stage I" means the
29 initial wildland fire strategy planning document. It is developed
30 for fires less than 20 acres, with a low potential of spread and
31 negative impacts. It must be completed within 8-hrs. of start.

32 "~~W[ildland]-F[ire]-I[mplementation]-P[lan]~~ Stage II" means a
33 more detailed wildland fire strategy planning document. It is
34 developed for fires greater than 20 acres that are~~larger~~ more
35 active fires with a greater potential for geographic extent. It
36 must be completed within 24-hrs. of start.

37 38 **R307-204-4. General Requirements.**

39 (1) Management of On-Going Fires. If, after consultation
40 with the land manager, the executive secretary determines that a
41 prescribed fire, wildland fire use event, wildland fire, or any
42 smoke transported from other locations, is degrading air quality
43 to levels that could violate the National Ambient Air Quality
44 Standards or burn plan conditions, the land manager shall promptly
45 stop igniting additional prescribed fires.

46 (2) Emissions Calculations. In calculating emissions
47 information required under R307-204, each land manager shall use
48 emission factors approved by the executive secretary.

49 (3) Non-burning Alternatives to Fire. Beginning in 2004 and
50 annually thereafter, each land manager shall submit to the
51 executive secretary by March 15 a list of areas treated using non-
52 burning alternatives to fire during the previous calendar year,

1 including the number of acres, the specific types of alternatives
2 used, and the location of these areas.

3 (4) Annual Emissions Goal. The executive secretary shall
4 provide an opportunity for an annual meeting with land managers
5 for the purpose of evaluation and adoption of the annual emission
6 goal. The annual emission goal shall be developed in cooperation
7 with states, federal land management agencies and private
8 entities, to control prescribed fire emissions increases to the
9 maximum feasible extent.

10 (5) Long-term Fire Projections. Each land manager shall
11 provide to the executive secretary by March 15 annually long-term
12 projections of future prescribed fire activity for annual
13 assessment of visibility impairment.

14
15 **R307-204-5. Burn Schedule.**

16 (1) Any land manager planning prescribed fire burning more
17 than 50 acres per year shall submit the burn schedule to the
18 executive secretary on forms provided by the Division of Air
19 Quality, and shall include the following information for all
20 prescribed fires including those smaller than [5]20 acres:

21 (a) Project number and project name;

22 (b) Air Quality Basin, UTM coordinate for the central point
23 of the prescribed fire, project elevation, and county;

24 (c) Total project acres, description of major fuels, type of
25 burn, ignition method, and planned use of emission reduction
26 techniques to support establishment of the annual emissions goal;

27 (d) Earliest burn date and burn duration.

28 (2) Each land manager shall submit each year's burn schedule
29 no later than March 15 of that year.

30 (3) Any land manager who makes changes to the burn schedule
31 shall submit an amendment to the burn schedule within 10 days
32 after the change.

33
34 **R307-204-6. Small Prescribed Fires (de minimis).**

35 (1) A prescribed fire that covers less than 20 acres per
36 burn shall be ignited only when the clearing index is 500 or
37 greater.

38 (2) A prescribed fire that covers less than 20 acres per day
39 may be ignited when the National Weather Service Clearing Index is
40 between 500 and 400 [~~under a conditional basis~~]with approval of
41 the executive secretary.

42 (a) The prescribed fire should be recorded as a de minimis
43 prescribed fire on the Utah Annual Burn Schedule.

44 (b) The Land Manager is required to notify the executive
45 secretary by fax, e-mail, or phone prior to ignition of the burn
46 when burning below a National Weather Service Clearing Index is
47 between 500 and 400.

48 (c) The land manager must [~~Additional reporting requirements~~
49 ~~include~~~~ing~~] hourly photographs, a record of any complaints,
50 hourly meteorological conditions and an hourly description of the
51 smoke plume must be recorded and submitted.

R307-204-7. Small Prescribed Pile Fires (de minimis).

(1) Pile burns covering up to 30,000 cubic feet per day shall be ignited only when the clearing index is 500 or greater.

(2) Pile burns covering up to 30,000 cubic feet per day may be ignited when the National Weather Service Clearing Index is between 500 and 400 [~~under a conditional basis~~] with approval of the executive secretary.

(a) The pile fire should be recorded as a de minimis prescribed fire on the Utah Annual Burn Schedule.

(b) The Land Manager is required to notify the executive secretary by fax, e-mail, or phone prior to ignition of the burn when burning below a National Weather Service Clearing Index is between 500 and 400.

(c) ~~The land manager must [Additional reporting requirements include]~~ing hourly photographs, a record of any complaints, hourly meteorological conditions and an hourly description of the smoke plume must be recorded and submitted.

R307-204-8. Large Prescribed Fires.

(1) Burn Plan. For a prescribed fire that covers 20 acres or more per burn, the land manager shall submit to the executive secretary a burn plan, including a fire prescription[~~upon request~~].

(2) Pre-Burn Information. For a prescribed fire that covers 20 acres or more per burn, the land manager shall submit pre-burn information to the executive secretary at least two weeks before the beginning of the burn window. The pre-burn information shall be submitted to the executive secretary on the appropriate form provided by the Division of Air Quality by fax, electronic mail or postal mail and shall include the following information:

(a) The three-letter ID, project number, date submitted, name of person submitting the form, burn manager, and phone numbers;

(b) Summary of burn objectives, such as restoration or maintenance of ecological functions or indication of fire resiliency;

(c) Any sensitive receptor within 15 miles, including any Class I or nonattainment or maintenance area, and distance and direction in degrees from the project site;

(d) Planned mitigation methods;

(e) The smoke dispersion or visibility model used and results;

(f) The estimated amount of total particulate matter anticipated;

(g) A description of how the public and land managers in neighboring states will be notified;

(h) A map depicting both the daytime and nighttime smoke path and down-drainage flow for a minimum of 15 miles from the burn site with smoke-sensitive areas delineated;

(i) Safety and contingency plans for addressing any smoke intrusions; and

(j) If the fire is in a nonattainment or maintenance area

1 and is subject to general conformity (42 U.S.C. 7506(c)), a copy
2 of the conformity demonstration showing that the fire meets the
3 requirements of the Clean Air Act and conforms with the applicable
4 State Implementation Plan.

5 (k) Planned use of emission reduction techniques to support
6 establishment of an annual emissions goal, if not already
7 submitted under R307-204-5.

8 (l) Any other information needed by the executive secretary
9 for smoke management purposes, or for assessment of contribution
10 to visibility impairment in any Class I area.

11 (3) Burn Request.

12 (a) The land manager shall submit to the executive secretary
13 a burn request on the form provided by the Division of Air Quality
14 by 1000 hours at least two business days before the planned
15 ignition time. The form may be submitted by fax or electronic
16 mail, and must include the following information:

17 (i) The three-letter identification and project number
18 consistent with the annual burn schedule required in R307-204-5(1)
19 above;

20 (ii) The date submitted and by whom; and

21 (iii) The burn manager conducting the burn and phone
22 numbers.

23 (b) No prescribed fire requiring a burn plan shall be
24 ignited before the executive secretary approves ~~[or conditionally~~
25 ~~approves]~~ the burn request.

26 (c) If a prescribed fire is delayed, changed or not
27 completed following burn approval, any significant changes in the
28 burn plan shall be submitted to the executive secretary before the
29 burn request is submitted. If a prescribed fire is not carried
30 out, the land manager shall list the reasons on the burn request
31 form provided by the Division of Air Quality and shall submit the
32 form by fax or electronic mail to the executive secretary by 0800
33 hours the following business day.

34 (4) Daily Emissions Report. By 0800 hours on the day
35 following the prescribed burn, for each day of prescribed fire
36 activity covering 20 acres or more, the land manager shall submit
37 to the executive secretary a daily emission report on the form
38 provided by the Division of Air Quality including the following
39 information:

40 (a) The three-letter identification and project number
41 consistent with the annual burn schedule required in R307-204-5(1)
42 above;

43 (b) The date submitted and by whom;

44 (c) The start and end dates and times of the burn;

45 (d) Emission information including black acres, tons fuel
46 consumed per acre, and tons particulate matter produced;

47 (e) Public interest regarding smoke;

48 (f) Daytime ventilation;

49 (g) Nighttime smoke behavior;

50 (h) Evaluation of the techniques used by the land manager to
51 reduce emissions or manage the smoke from the prescribed burn; and

52 (i) Emission reduction techniques applied.

1 (5) Emission Reduction and Dispersion Techniques. Each land
2 manager shall take measures to prevent smoke impacts. Such
3 measures may include best management practices such as dilution,
4 emission reduction or avoidance in addition to others described in
5 the pre-burn information form provided by the Division of Air
6 Quality. An evaluation of the techniques shall be included in the
7 daily emissions report required by (4) above.

8 (6) Monitoring. Land managers shall monitor the effects of
9 the prescribed fire on smoke sensitive receptors and on visibility
10 in Class I areas, as directed by the burn plan. Hourly visual
11 monitoring and documentation of the direction of the smoke plume
12 shall be recorded on the form provided by the Division of Air
13 Quality or on the land manager's equivalent form. Complaints from
14 the public shall be noted in the land manager's project file.
15 Records shall be available for inspection by the executive
16 secretary for six months following the end of the fire.

17
18 **R307-204-9. Large Prescribed Pile Fires.**

19 (1) Burn Plan. For a prescribed pile fire that exceeds
20 30,000 cubic feet per day, the land manager shall submit to the
21 executive secretary a burn plan, including a fire prescription[
22 ~~upon request~~].

23 (2) Pre-Burn Information. For a prescribed pile fire that
24 exceeds 30,000 cubic feet or more per burn, the land manager shall
25 submit pre-burn information to the executive secretary at least
26 two weeks before the beginning of the burn window. The pre-burn
27 information shall be submitted to the executive secretary on the
28 appropriate form provided by the Division of Air Quality by fax,
29 electronic mail or postal mail and shall include the following
30 information:

31 (a) The three-letter ID, project number, date submitted,
32 name of person submitting the form, burn manager, and phone
33 numbers;

34 (b) Summary of burn objectives, such as restoration or
35 maintenance of ecological functions or indication of fire
36 resiliency;

37 (c) Any sensitive receptor within 15 miles, including any
38 Class I or nonattainment or maintenance area, and distance and
39 direction in degrees from the project site;

40 (d) Planned mitigation methods;

41 (e) The smoke dispersion or visibility model used and
42 results;

43 (f) The estimated amount of total particulate matter
44 anticipated;

45 (g) A description of how the public and land managers in
46 neighboring states will be notified;

47 (h) A map depicting both the daytime and nighttime smoke
48 path and down-drainage flow for a minimum of 15 miles from the
49 burn site with smoke-sensitive areas delineated;

50 (i) Safety and contingency plans for addressing any smoke
51 intrusions; and

52 (j) If the fire is in a nonattainment or maintenance area

1 and is subject to general conformity (42 U.S.C. 7506(c)), a copy
2 of the conformity demonstration showing that the fire meets the
3 requirements of the Clean Air Act and conforms with the applicable
4 State Implementation Plan.

5 (k) Planned use of emission reduction techniques to support
6 establishment of an annual emissions goal, if not already
7 submitted under R307-204-5.

8 (l) Any other information needed by the executive secretary
9 for smoke management purposes, or for assessment of contribution
10 to visibility impairment in any Class I area.

11 (3) Burn Request.

12 (a) The land manager shall submit to the executive secretary
13 a burn request on the form provided by the Division of Air Quality
14 by 1000 hours at least two business days before the planned
15 ignition time. The form may be submitted by fax or electronic
16 mail, and must include the following information:

17 (i) The three-letter identification and project number
18 consistent with the annual burn schedule required in R307-204-5(1)
19 above;

20 (ii) The date submitted and by whom; and

21 (iii) The burn manager conducting the burn and phone
22 numbers.

23 (b) No prescribed pile fire requiring a burn plan shall be
24 ignited before the executive secretary approves ~~[or conditionally~~
25 ~~approves]~~ the burn request.

26 (c) If a prescribed pile fire is delayed, changed or not
27 completed following burn approval, any significant changes in the
28 burn plan shall be submitted to the executive secretary before the
29 burn request is submitted. If a prescribed fire is not carried
30 out, the land manager shall list the reasons on the burn request
31 form provided by the Division of Air Quality and shall submit the
32 form by fax or electronic mail to the executive secretary by 0800
33 hours the following business day.

34 (4) Daily Emissions Report. By 0800 hours on the day
35 following the prescribed pile burn, for each day of pile fire
36 activity exceeding 30,000 cubic feet, the land manager shall
37 submit to the executive secretary a daily emission report on the
38 form provided by the Division of Air Quality including the
39 following information:

40 (a) The three-letter identification and project number
41 consistent with the annual burn schedule required in R307-204-5(1)
42 above;

43 (b) The date submitted and by whom;

44 (c) The start and end dates and times of the burn;

45 (d) Emission information including black acres, tons fuel
46 consumed per acre, and tons particulate matter produced;

47 (e) Public interest regarding smoke;

48 (f) Daytime ventilation;

49 (g) Nighttime smoke behavior;

50 (h) Evaluation of the techniques used by the land manager to
51 reduce emissions or manage the smoke from the prescribed pile
52 burn; and

1 (i) Emission reduction techniques applied.

2 (5) Emission Reduction and Dispersion Techniques. Each land
3 manager shall take measures to prevent smoke impacts. Such
4 measures may include best management practices such as dilution,
5 emission reduction or avoidance in addition to others described in
6 the pre-burn information form provided by the Division of Air
7 Quality. An evaluation of the techniques shall be included in the
8 daily emissions report required by (4) above.

9 (6) Monitoring. Land managers shall monitor the effects of
10 the prescribed pile fire on smoke sensitive receptors and on
11 visibility in Class I areas, as directed by the burn plan. Hourly
12 visual monitoring and documentation of the direction of the smoke
13 plume shall be recorded on the form provided by the Division of
14 Air Quality or on the land manager's equivalent form. Complaints
15 from the public shall be noted in the land manager's project file.
16 Records shall be available for inspection by the executive
17 secretary for six months following the end of the fire.

18
19 **R307-204-10. Requirements for Wildland Fire Use Events.**

20 (1) Burn Approval Required.

21 (a) The land manager shall notify the executive secretary of
22 any potential wildland fire use (WFU) event having a wildland fire
23 implementation plan (WFIP) Stage I. The following information
24 will be provided:

- 25 (i) UTM coordinate of the fire;
- 26 (ii) Active burning acres;
- 27 (iii) Probable fire size and daily anticipated growth in
28 acres;
- 29 (iv) Types of wildland fuel involved;
- 30 (v) An emergency telephone number that is answered 24 hours
31 a day;
- 32 (vi) Wilderness or Resource Natural Area designation, if
33 applicable;
- 34 (vii) Distance to nearest community;
- 35 (viii) Elevation of fire; and
- 36 (ix) Fire's airshed number.

37 (b) The Land Managers shall notify the executive secretary
38 of any potential wildland fire use (WFU) event covering more than
39 20 acres or having a WFIP Stage II due to higher potential for
40 spread and negative impacts. In addition to the information
41 required for a WFU with a WFIP Stage I, the following additional
42 information will be provided to the executive secretary as it is
43 being developed:

- 44 (i) WFIP Stage II wildland fire implementation plan and
45 anticipated emissions;
- 46 (ii) A map depicting both the daytime and nighttime smoke
47 path and down-drainage flow for a minimum of 15 miles from the
48 burn site with smoke-sensitive areas delineated; and
- 49 (iii) Additional computer smoke modeling, if requested by
50 the executive secretary.

51 (c) The executive secretary's approval of the smoke
52 management element of the wildland fire implementation plan shall

1 be obtained before managing the fire as a wildland fire use event.

2 (2) Daily Emission Report for wildland fire use event. By
3 0800 hours on the business day following fire activity covering 20
4 acres or more, the land manager shall submit to the executive
5 secretary the daily emission report on the form provided by the
6 Division of Air Quality, including the following information:

7 (a) The three-letter identification, project number, Air
8 Quality Basin, and name of the burn manager;

9 (b) UTM coordinate;

10 (c) Dates and times of the start and end of the burn;

11 (d) Black acres by wildland fuel type;

12 (e) Estimated proportion of wildland fuel consumed by
13 wildland fuel type;

14 (f) Proportion of moisture in the wildland fuel by size
15 class;

16 (g) Emission estimates;

17 (h) Level of public interest or concern regarding smoke; and

18 (i) Conformance to the wildland fire implementation plan.

19 (3) Monitoring. The land manager shall monitor the effects
20 of smoke on smoke sensitive receptors and visibility in Class I
21 areas as directed by the wildland fire implementation plan.
22 Complaints from the public shall be recorded in the project file.

23 Records shall be available for inspection by the executive
24 secretary for six months following the end of the fire.

25
26 **KEY: air quality, wildland fire, smoke, land manager**

27 **Date of Enactment or Last Substantive Amendment: 2011~~[April 7,~~
28 ~~2006]~~**

29 **Notice of Continuation: March 4, 2010**

30 **Authorizing, and Implemented or Interpreted Law: 19-2-104(1)(a)**